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EXAMINER

MAHMOUDI, HASSAN

| ART UNIT | PAPER NUMBER |
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2175

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/658,303

Applicant(s)

HAAS ET AL.

Examiner

Tony Mahmoudi

Art Unit

2175

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-14 and 16-22 is/are rejected.
- 7) ☒ Claim(s) 6 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

DOV POPOVICI

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

1. In response to communications filed on 23-December-2003, claims 1-22 are presently pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Ripley (U.S. Publication No. 2002/0023097 A1.)

Art Unit: 2175

As to claim 9, Ripley teaches a computer-implemented method for generating a mapping from a source schema to a target schema (see Abstract), comprising:

generating a mapping based on at least a subset of value correspondences each value correspondence representing a function for deriving a value of a target attribute from one or more values of source attributes (see paragraphs 19, 24, and 80-81);

allowing a user, in a user interaction, to incrementally add or delete a value correspondence from the subset (see paragraphs 24 and 57);

based on the user interaction, generating a new mapping (see paragraphs 57 and 80);

presenting a representation of the new mapping to the user such that the user can view the representation (see paragraphs 19, 90, and 107); and

permitting the user to add or delete a value correspondence embodied in the new mapping to generate another mapping (see paragraphs 57, 80, and 85.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2175

5. Claims 1-5, 7-8, 10-14 and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ripley (U.S. Publication No. 2002/0023097 A1) in view of Morgenstern (U.S. Patent No. 5,970,490.)

As to claim 1, Ripley teaches a computer system (see Abstract), comprising:

a general purpose computer (see paragraph 23), the computer including logic for undertaking method (see paragraph 22, where “logic for undertaking method” is read on “software program”) acts to map data arranged in a source schema into a target schema (see figure 7D, and see paragraph 84), the method acts undertaken by the logic including:

receiving at least one value correspondence, each value correspondence representing a function for deriving a value of a target attribute from one or more values of source attributes (see paragraph 16);

grouping at least some value correspondences into potential sets (see paragraph 72, and see page 10, claim 5);

selecting candidate sets from at least some potential sets (see paragraphs 80-81);

grouping at least some candidate sets into covers (see paragraphs 73-76); and

using at least one cover, representing a source schema-to-target schema mapping (see paragraph 23, and see paragraph 84.)

Ripley does not teach generating at least one query.

Morgenstern teaches an integration platform for heterogeneous databases (see Abstract), in which he teaches generating at least one query (see column 13, lines 39-45, and see column 28, lines 24-39.)

Art Unit: 2175

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ripley to include generating at least one query.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ripley by the teaching of Morgenstern, because generating at least one query would enable the system to identify the data to be moved from the source database to the target database.

As to claims 2 and 11, Ripley as modified teaches wherein the method acts undertaken by the logic to execute the grouping act include:

grouping value correspondences into potential sets such that, for each potential set, at most one value correspondence per target attribute exists (see Ripley, paragraphs 21 and 96.)

As to claims 3 and 12, Ripley as modified teaches wherein the method acts undertaken by the logic further include:

adding a potential set to a set of candidate sets if only one source relation is used to compute mappings using the potential set (see Ripley, paragraph 46); otherwise

adding a potential set to the set of candidate sets only if a join path for the source relations can be identified (see Ripley, paragraph 82.)

As to claims 4 and 13, Ripley as modified teaches wherein the method acts undertaken by the logic further include:

arranging candidate sets into groups (see Ripley, paragraph 72, and see page 10, claim 5) such that each group includes every value correspondence at least once, the groups establishing covers (see Ripley, paragraphs 73-76)

As to claims 5 and 14, Ripley as modified teaches wherein the method acts undertaken by the logic further include:

establishing at least one selected cover (see Ripley, paragraph 14);

for each candidate set in the selected cover, creating at least one query (see Morgenstern, column 13, lines 39-45, and see column 28, lines 24-39); and

combining the queries for the cover (see Morgenstern, column 28, lines 26-29.)

As to claims 7 and 16, Ripley as modified teaches wherein the logic undertakes the act of adding a potential set to the set of candidate sets only if a join path for the source relations can be identified using a spanning tree (see Ripley, paragraphs 46 and 82.)

As to claim 8, Ripley as modified teaches wherein the logic incrementally undertakes the acts of grouping value correspondences into potential sets (see Ripley, paragraphs 21 and 96), selecting candidate sets (see Ripley, paragraph 14), grouping candidate sets into covers (see Ripley, paragraphs 73-76), and generating queries representing mappings (see Morgenstern, column 28, lines 26-29.)

Art Unit: 2175

As to claim 10, Ripley teaches wherein the generating act includes:

grouping at least some value correspondences into potential sets (see paragraph 72, and see page 10, claim 5);

selecting candidate sets from at least some potential sets (see paragraphs 80-81);

grouping at least some candidate sets into covers (see paragraphs 73-76); and

using at least one cover, representing a source schema-to-target schema mapping (see paragraph 23, and see paragraph 84.)

Ripley does not teach generating at least one query.

Morgenstern teaches an integration platform for heterogeneous databases (see Abstract), in which he teaches generating at least one query (see column 13, lines 39-45, and see column 28, lines 24-39.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ripley to include generating at least one query.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ripley by the teaching of Morgenstern, because generating at least one query would enable the system to identify the data to be moved from the source database to the target database.

As to claim 17, Ripley teaches computer program device (see Abstract, and see paragraph 22) comprising:

Art Unit: 2175

a computer program storage device readable by a digital processing apparatus (see paragraph 125); and

a program on the program storage device and including instructions executable by the digital processing apparatus (see paragraph 125, where “instructions” is read on “software”) for performing method acts for representing a source schema-to-target schema mapping, the program comprising (see paragraph 86):

computer readable code means (see paragraphs 22 and 124.)

For the remaining steps of this claim, the candidate is kindly directed to remarks and discussions made in claims 1 and 9 above.

Ripley does not teach generating a query.

Morgenstern teaches an integration platform for heterogeneous databases (see Abstract), in which he teaches generating a query (see column 13, lines 39-45, and see column 28, lines 24-39.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ripley to include generating a query.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ripley by the teaching of Morgenstern, because generating a query would enable the system to identify the data to be moved from the source database to the target database.

As to claim 18, Ripley as modified teaches the program product further comprising computer readable code means for sorting the subsets (see Ripley, paragraphs 55 and 74) and

Art Unit: 2175

displaying at least portions of a sorted list of subsets (see Ripley, paragraphs 19, 90, and 107), such that a user can establish a selected subset used (see Ripley, paragraphs 57, 80, and 85) to generate the query (see Morgenstern, column 13, lines 39-45, and see column 28, lines 24-39.)

As to claim 19, Ripley as modified teaches wherein the means for generating subsets generates candidate sets (see Ripley, paragraph 68), each subset including one or more candidate sets and the means for sorting sorts the subsets by inverse number of candidate sets (see Ripley, paragraphs 55 and 74.)

As to claim 20, Ripley as modified teaches, wherein the means for sorting also sorts the subsets by the number of value correspondences in the subsets (see Ripley, paragraphs 55 and 74.)

As to claim 21, Ripley as modified teaches wherein the means for generating a query creates at least one query for each candidate set in the selected subset (see Morgenstern, column 13, lines 39-45), and then combines the queries for the subset (see Morgenstern, column 28, lines 26-29.)

As to claim 22, Ripley as modified teaches wherein the means for generating subsets and the means for generating a query (see Morgenstern, column 13, lines 39-45, and see column

Art Unit: 2175

28, lines 24-39) are incrementally invoked by a user to selectively add or delete value correspondences from a selected subset (see Ripley, paragraphs 24, 57, 80, and 85.)

Allowable Subject Matter

6. Claims 6 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, Ripley (U.S. Publication No. 2002/0023097) and Morgenstern (U.S. Patent No. 5,970,490), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

wherein the method acts undertaken by the logic to establish at least one selected cover include:

ranking the covers by at least one of: a number of candidate sets in each cover, and a number of target attributes; and

presenting ranked covers to a user for selection of one of the covers as the selected cover, as claimed in claim 6.

Art Unit: 2175

The prior art of record, Ripley (U.S. Publication No. 2002/0023097) and Morgenstern (U.S. Patent No. 5,970,490), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

the method further comprising:

ranking the covers by at least one of: a number of candidate sets in each cover, and a number of target attributes; and

presenting ranked covers to a user for selection of one of the covers as the selected cover, as claimed in claim 15.

Response to Arguments

8. Applicant's arguments filed on 23-December-2003 with respect to the rejected claims in view of the cited references have been fully considered but they are not found to be persuasive:

In response to the applicant's argument regarding the arrangement of the specification, that "Rule 77(b) is drafted in advisory form, not mandatory form, the applicant's remarks are noted.

In response to the applicant's argument that Ripley claims priority to an earlier-filed provisional application, and that "the earlier-filed provisional application has not been introduced into evidence nor has there been a sworn statement submitted that the examiner has verified that the relied-upon portions of Ripley in fact appear in the provisional application", the argument has been fully considered but it is not found persuasive, because as detailed in the MPEP, "the 35 U.S.C. 102(e) critical reference date of a U.S. patent or U.S.

Art Unit: 2175

application publication and certain international application publications entitled to the benefit of the filing date of a provisional application under 35 U.S.C. 119(e) is the filing date of the provisional application.” See MPEP, §2136.03, section III, PRIORITY FROM PROVISIONAL APPLICATION UNDER 35. U.S.C. 119(e). Since the validity of a printed patent or publication cannot be questioned, the examiner is making the assumption that the priority date of the provisional application, as claimed by Ripley, is indeed valid. In addition, at the present time there is no requirement in the MPEP in support of the above suggested analysis and determination requirements for provisional applications, regarding “a sworn statement submitted that the examiner has verified that the relied-upon portions of Ripley in fact appear in the provisional application”.

In response to the applicant’s arguments that Ripley does not teach or suggest “generating a mapping based on at least a subset of value correspondences, with each value correspondence representing a function for deriving a value of a target attribute from one or more values of source attributes”, the arguments have been fully considered but are not deemed persuasive, because Ripley teaches “applying the data from a source element or source child element to a matching target element or target child element” (see Abstract), and he teaches “the user may explicitly define at least one element match between at least one source element and at least one target element via a user definable mapping services facility (see paragraph 19). Also in paragraph 70, Ripley teaches “the use of aliases allows derivative data types to rename certain child elements”.

In response to the applicant's arguments that "there is no evidence of record that the skilled artisan would regard mapping a database entry in one data structure directly into another data structure as taught by Ripley would be the same thing as 'deriving' an entry in a target schema from a source schema", the arguments have been fully considered but are not deemed persuasive, because Ripley, in paragraph 106, indicates that "the data is applied 'directly' to the target element" only if "neither the active source element, nor the active target element, has children". As stated by Ripley, in the case that "the source element has no children, but the target element does have children", then "the data is 'tokenized,' or broken apart, and distributed among the child elements of the target using a Decomposition Algorithm. The Decomposition Algorithm may comprise any algorithm suitable for applying data tokens to child elements of a hierarchical data structure". In this case, "deriving an entry in a target schema from a source schema" is read on "distribution among the child elements using a Decomposition Algorithm".

In response to the applicant's arguments that "more explanation is requested" for "paragraphs 73-76" teaching "grouping candidate sets into covers", paragraph 73 teaches a "hierarchical structure of the name". Paragraph 76 teaches re-specifying all elements in proper order". The applicant's "grouping candidate sets into covers" is read on "the hierarchical structure, where all elements are specified in proper order".

In response to the applicant's arguments that "more explanation is requested" for "paragraphs 23 and 84" teaching "using a cover to represent a mapping", paragraph 23

Art Unit: 2175

teaches "selecting a cover" (read on "means for receiving at least one source element from the first hierarchical data structure") to "represent a mapping" (read on "means for comparing a child of a source element to a child of a target element".)

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

10. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Tony Mahmoudi whose telephone number is (703) 305-4887. The examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici, can be reached at (703) 305-3830.

tm

February 25, 2004


DOV POPOVICI
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